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Kazutaka Hara

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EXAMINER

CHOI, JACOB Y

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/570,141	Applicant(s) HARA ET AL.	
	Examiner JACOB Y. CHOI	Art Unit 2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 23-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-22, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **8, 12, 13, 14, 16-18, 20-22, 27, & 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. (USPN 6,025,897).

Regarding claim **8**, Weber et al. discloses a transmittance angle dependent (Abstract; "... *multiple layer reflective polarizer 12 ... reflective polarizer reflects some light into the optical cavity 24 where it is randomized and may ultimately emerge with the correct polarization to be transmitted out of the display*") polarizing layer (12) which transmits a polarized light component of one direction of polarization in normal incident light (column 3, lines 25-65; "... *ray bundle is incident on the reflective polarizer 12 which transmits light having a first polarization orientation referred to as "(a)" and effectively reflects light*"), and selectively reflects the other polarized light component and reflects

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obliquely incident light regardless of a direction of polarization is disposed on one surface of the sidelight type backlight light guide plate (e.g., FIG 2), and a reflection plate (e.g., 37, 36, & 39) having a discontinuous reflective structure (columns 3-4, lines 25-15; “... *It should be appreciated that a diffuse reflective surface ... can be formed of transparent surface textured polycarbonate*”) is disposed on the other surface of the sidelight type backlight light guide plate (e.g., 30 & 34).

Weber et al. fails to include details of the reflection plate having a respective slope structure.

However, Weber et al. suggest that in columns 3-4, lines 25-15; “... *It should be appreciated that a diffuse reflective surface ... can be formed of transparent surface textured polycarbonate*”.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize specifically shaped reflection plate, since the examiner takes Official Notice of the equivalence of discontinuous diffusely reflective structure in combination with reflective layer 39 of Weber et al. to recirculation and randomization process of light reflected by the light cavity 24 compare to other shapes of reflective surface that is equivalent to recalculate the light would be within the level of ordinary skill in the art.

Regarding claim 12, Weber et al. further discloses the transmittance angle dependent polarizing layer transmits one of linearly polarized lights perpendicular to each other, while selectively reflecting the other thereof (FIG 8; column 7, lines 20-40;

"... axis 228 represents the angle that the light ray makes to a normal to smooth surface 220 when the direction of the light ray is projected into a plane perpendicular to the linear extent of the structures on structured surface 222").

Regarding claim 13, Weber et al. further discloses the transmittance angle dependent polarizing layer is multilayer laminate made of polymers having a birefringent anisotropy (e.g., column 14, lines 5-15; *"... three general categories of materials: isotropic, uniaxially birefringent, and biaxially birefringent"*).

Regarding claim 14, Weber et al. further discloses the transmittance angle dependent polarizing layer is a polarizing element in which a retardation layer (FIG 4 & 14) is inserted between at least two reflection polarizer having wavelength bands (e.g., FIG 5, 22, & 26-40), overlapped on one of the other, of selective reflection of polarized light (12).

Regarding claims 16-18, Weber et al. further discloses the reflection polarizer is a linear polarization type reflection polarizer transmitting one of linearly polarized lights perpendicular to each other (FIG 8; column 7, lines 20-40; *"... axis 228 represents the angle that the light ray makes to a normal to smooth surface 220 when the direction of the light ray is projected into a plane perpendicular to the linear extent of the structures on structured surface 222"*), while selectively reflecting the other thereof (Abstract; *"... multiple layer reflective polarizer 12 ... reflective polarizer reflects some light into the optical cavity 24 where it is randomized and may ultimately emerge with the correct polarization to be transmitted out of the display"*), the retardation layer (FIG 4 & 14) is comprises a layer having a front retardation of almost zero and a retardation of $\lambda/4$

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disposed on both sides of the layer or two biaxial retardation layer each having a front retardation of about $\lambda/4$ and Nz coefficient of 2 (FIG 8; column 7, lines 20-40) or more or one biaxial retardation layers having a front retardation of about $\lambda/2$ and Nz coefficient of 1.5 or more (FIG 8; column 7, lines 20-40), one of the layers being disposed between the retardation layer and a corresponding linear polarization type reflection polarizer and the other of the layers being disposed between the retardation layer and another linear polarization type reflection polarizer, the layer on the incidence side is arranged at an angle of $45^\circ (-45^\circ) \pm 5^\circ$ relative to the polarization axis of the linear polarization type reflection polarizer on the incidence side (column 18, lines 20-30; "... a low color polarizer is desirable ... preferably at least 45 degrees from the normal" & column 33, lines 50-65; "... reflective polarizer desirably has % RMS color in the transmitted polarization ... at angles orthogonal to the polarization of at least 30 degrees, more preferably at least 45 degrees, and even more preferably at least 60 degrees"), the layer on the emission side is arranged at an angle of $45^\circ (-45^\circ) \pm 5^\circ$ relative to the polarization axis of the linear polarization type reflection polarizer on the emission side, and the layer on the incidence side and the layer on the emission side are arranged at an arbitrary angle (FIG 8) formed between the respective slow axes thereof (column 11, lines 50-65; "... reflectivity for p polarized light decrease slowly with angle of incidence, are independent of angle of the incidence, or increase with angle of incidence away from the normal ... multilayer stacks having high reflectivity for both s and p polarized light over a wide bandwidth, and over a wide range of angles can be achieved").

Regarding claim 20, Weber et al. further discloses an optical layer having a function to cancel ("b", 156 (b, c, d), 157 (a, b, c, d)) polarization of light reflected by the transmittance angle dependent polarizing layer is disposed between the transmittance angle dependent (FIG 8) polarizing layer and the sidelight type backlight light guide plate and/or between the sidelight type backlight plate and the reflection plate (FIGS 2, 7, 9, & 11).

Regarding claim 21, Weber et al. further discloses the optical layer having polarization canceling ability is placed on a surface of the repetitive slope structure of the reflection plate.

Regarding claim 22, Weber et al. further discloses the optical layer having polarization canceling ability is a retardation plate.

Regarding claim 27, Weber et al. further discloses an average slope angle Θ_2 of the repetitive slope structure of the reflection plate disposed on one surface of the sidelight type backlight light guide plate has the following relation to a peak angle Θ_1 in an emitting light direction of the sidelight type light guide plate: $\Theta_2 = (\Theta_1 / 2) \pm 10^\circ$ (FIG 7; columns 6-7, lines 65-20; "... *prism having peak angles in the range of 70 degrees to 110 degrees will work with varying degrees of effectiveness with the invention*"). It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 233.

Regarding claim 28, Weber et al. further discloses a liquid crystal cell (FIG 10), and a polarizing plate (e.g., 149 & 150) disposed on both sides of the liquid crystal cell. (147).

Claims **9, 10, 11, 15, & 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. (USPN 6,025,897) in view of Albro et al. (USPN 6,403,223).

Regarding claim 9, Weber et al. teaches the transmittance angle dependent polarizing layer transmits a polarized light, while selectively reflects a reverse circularly polarized light.

However, failed to include details of the circularly polarized light.

Albro et al. teaches the polarizing layer transmits a circularly polarized light.

It would have been to one having ordinary skill in the art at the time the invention was made to utilize other types of polarizer, circular polarizer, to correct polarization of the display device.

Regarding claim 10, Weber et al. in view of Albro et al. disclose the claimed invention, as explained above. In addition, Weber further teaches the transmittance angle dependent polarizing layer comprises at least one cholesteric liquid crystal polymer layer (column 4, lines 40-50; "... *reflective polarizer 12 is made of alternating layers ... of two different polymeric materials ... etc.*").

Regarding claim 11, Weber et al. in view of Albro et al. disclose the claimed invention, as explained above. In addition, Weber further teaches the transmittance

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angle dependent polarizing layer is a cholesteric liquid crystal band-pass filter (column 11, lines 50-60; "... *multilayer stacks having high reflectivity for both s and p polarized light over a wide bandwidth, and over a wide range of angles can be achieved*").

Regarding claims 15 & 19, Weber et al. discloses the reflection polarizer is a polarization type reflection polarizer transmitting polarized light, while selectively reflecting reverse polarized light (Abstract; "... *multiple layer reflective polarizer 12 ... reflective polarizer reflects some light into the optical cavity 24 where it is randomized and may ultimately emerge with the correct polarization to be transmitted out of the display*"), and the retardation layer (e.g., FIG 4) comprises a layer having a front retardation (FIG 8; column 7, lines 20-40) of almost zero and a retardation of $\lambda/8$ or more relative to incident light incoming at a direction inclined from the normal direction by 30 degrees or more (column 18, lines 50-30; column 33, lines 50-65; "... *more preferably less than 2.1%, at angles orthogonal to the polarization of at least 30 degrees*").

However, failed to include details of the circularly polarized light.

Albro et al. teaches the polarizing layer transmits a circularly polarized light.

It would have been to one having ordinary skill in the art at the time the invention was made to utilize other types of polarizer, circular polarizer, to correct polarization of the display device.

Response to Arguments

Applicant's arguments filed February 11, 2009 have been fully considered but they are not persuasive. The examiner has carefully identified the boundaries of the

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protection sought by the applicant and to understand how the claims relate to and define what the applicant has indicated is the invention. However, current claim language does not clearly overcome cited prior art of record. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "... *at least a transmittance angle dependent polarizing layer which reflects obliquely incident light regardless of a direction of polarization*") are clearly taught by the cited prior art of record. To clarify, reviewing all embodiment(s) of Weber et al. (USPN 6,025,897) suggests that "... FIG. 8 illustrates the operation of structure surface material 218 ... regions 230, 232, and 234 ... ray 240 approaches at an angle less than the cut off angle and is totally internally reflected twice by structured surface 222 and returned to the interior of the optical cavity ... light ray 242 ... rays will reenter the next prism and be returned into display 210 ... fifth class of light ray" in columns 7-8, lines 15-40. Meaning, the polarizing layer (110) is angle dependent (FIG 8; 226, 232, and 234) which reflects ("b"; 40 ") obliquely ("... Upon reaching structure surface 222") incident light (e.g., 242 & 240) regardless of a direction of polarization (e.g., FIGS 10-11; column 9, lines 25-40; "... the optically structured layer 113 is separated form the reflective polarizer body 116 by gap 171"). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB Y. CHOI whose telephone number is (571)272-2367. The examiner can normally be reached on Monday-Friday (10:00-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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